

Third West Weekly Report Shepherd, Michael

124 1 180 - R8 SDMS

to:

Joyce Ackerman, 'Craig Barnitz (cbamitz@utah.gov)' 01/25/2012 10:11 AM

Hide Details

From: "Shepherd, Michael" < Michael. Shepherd@PacifiCorp.com>

To: Joyce Ackerman/R8/USEPA/US@EPA, "'Craig Barnitz (cbamitz@utah.gov)" <cbamitz@utah.gov>

7 Attachments

POF .

PDF

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Weekly Report 01-16 to 01-20-12.pdf Third West Weekly Log 2012-03.pdf 227872-1.pdf 227957-1.pdf 228051-1.pdf

POF

PCF

228155-1.pdf 228277-1.pdf

Joyce & Craig,

Attached are the reports for the week of January 16, 2012.

All air monitoring results came back negative, except the positive hits of chrysotile on Monday last week.

Please let me know if you have any questions.

Thanks,

Mike Shepherd
Project Manager
Rocky Mountain Power - Major Projects
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3RD WEST SUBSTATION REMEDIATION PROJECT HEALTH SAFETY MANAGER (HSM)

DAILY CHECKLIST

	DAILY CHECKLIST
DATE:	01/16/11
Genera	
	k area Health and Safety Inspection
NA	Review and if necessary update Activity Hazard Analyses (AHA) based on planned site
- 12.2	activities for the day
NA ·	Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP
NA	Site hazard and safety instruction for all first time employees, contractors or visitors
NA	Complete Employee Meeting Record Form B (where applicable)
NA	Document required Respirator Training completion with Form H
NA	Record times and numbers of dump trucks and trailers as they leave the site with contaminated material.
NA	Confirm return of waste material manifest documents for each load with site manager.
NA Com	uplete all CSHASP Forms (for applicable activities planned for that day)
NA	Illness/Injury Report Form A
NA	Site-Specific Training Record Form C
NA	Hot Work Permit Form D
NA	Trench/Evacuation Permit Form E
NA	Combined Space Entry Permit From F
	Exclusion zone operations are practiced as instructed.
	☐ Decontamination unit is working properly.
	Workers are using decontamination unit as instructed.
	☑ Workers use personal protective equipment properly.
Ø .	Set air samples at cardinal compass points around exclusion zone. Check
	throughout the day to ensure proper operation.
	Observe control measures for dust and fugitive materials i.e. watering excavation
	sites and track out prevention.
	Review sign-in/sign-out log throughout and at the end of the workday.
\square	Secure the site at the end of the workday
<u>Samplii</u>	<u>1g</u>
NA Soil	Confirmation sampling for any newly excavated areas
Ø	Stationary Air Monitoring during contaminated soil removal around the perimeter of the exclusion zone
NA	Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil removal
NA	Digitally photograph each sample location and at any place field sampling personnel determined necessary





☑		Electronically file photo files into the on-site database
☑		Complete Field Documentation
	abla	Field Sample Data Sheets (FSDS)
		Logbook
	NA	On-site computer database
abla		Label each sample media with a unique number
abla		Seal sample(s) in zip lock plastic bags
☑		Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory
		Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental Samples
☑		Review and disseminate sample results as received from the laboratories to Project Manager and other appropriate managers and employees
₹		Electronically file sample reports into on-site database



Project: 3rd West Sub Station	Date: 01/16/12
Location: 3rd West, 1st South, SLC	Job Number:
Survey Conducted By: Justin Kargis	Title:

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.			х	
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			x	
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	x			
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			х	.*
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toe boards shall be installed.			x	
1926.100 (a)	Head protection, where there is a possible danger of head injury.	х			

Standard	Title	In Compliance	Out of Compliance	D/A	Corrective Action Taken and Date
1926.652 (a) (1)	Excavation protective systems; examination by competent person when less than 5 feet in depth.			x	
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.			х	
1926.20 (b) (1)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.			х	
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toe boards.			х	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			х	
1926.25 (a)	Debris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.			х	
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.			х	
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x	
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.			X	
1926.403 (b) (2)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.	х			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a) (4)	Scaffolding shall have guardrails and toe boards when more than 10 feet high and when less than 45 inches of work space.			х	
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.			x	
1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	x			
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.			х	
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			х	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.			х	
1926.651 (c)	Excavations shall have a safe means of egress such as ladders, ramps, etc.	х			e
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.			х	•
1926.102 (a) (1)	Eye and face protection shall be provided.	х			
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.	х			
1926.350 (a) (9)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a ½ fire resistance barrier.			х	
1926.405 (a) (2) (ii) (e) &	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			X	

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		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.	х			
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.			х	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.	x			
1926.451 (a) (2)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.	х			
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			х	
1926.404 (f) (7)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer or the tool is double insulated.	x			,
1926.556 (b)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.			х	
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			х	
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.	x			
1926.602 (a)	Bi-directional earth moving equipment shall have audible alarms.	x			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a) (3)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.	х	(p)		
1926.550 (b) (2)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.		4	х	

Exclusion zone active all day.

Fence panels along east and north barriers of the EZ has been blown over by wind. Newman suited up, put those sections back up and placed new sections running from the new control building across to the yard fence to accommodate new EZ boundaries. New boundary also allows for entry into energized section of the sub station without entering through decontamination unit.

Sometime before 12:00 one of the two Newman dump trucks that washed out wrecked on the way to the dumpsite. The load of contaminated soil was spilled and, as communicated by Newman workers, the truck was a total loss. The driver was sent to the hospital to be treated for bruises and other injuries. The cause of the accident is yet unknown.

Somewhat relaxed EZ protocols were observed including a Newman worker exiting through the east gate while suited up to retrieve tools from a work truck and vehicle transfers. This happened in direct line of site of R&R. Personnel foot travel into and out of the EZ is not happening exclusively through the decontamination unit. This will be addresses with RMP and CVE before the bi-weekly meeting on 1/18/12.

2 trucks washed out throughout the day.

CVE line crew worked in energized area of substation to dismantle framework and riser structures for Jordan and Gadsby lines.



determined necessary



3RD WEST SUBSTATION REMEDIATION PROJECT

HEALTH SAFETY MANAGER (HSM)

DAILY CHECKLIST

		<u>Biner eneckerst</u>
DATE:		01/17/11
Car	<u>neral</u>	
		area Health and Safety Inspection
NA NA		Review and if necessary update Activity Hazard Analyses (AHA) based on planned site
117.		activities for the day
NA		Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior
IVA		to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP
NA		Site hazard and safety instruction for all first time employees, contractors or visitors
NA		Complete Employee Meeting Record Form B (where applicable)
NA		Document required Respirator Training completion with Form H
NA		Record times and numbers of dump trucks and trailers as they leave the site with contaminated material.
NA		Confirm return of waste material manifest documents for each load with site manager.
NA	Compl	ete all CSHASP Forms (for applicable activities planned for that day)
	NA	Illness/Injury Report Form A
	NA	Site-Specific Training Record Form C
	NA	Hot Work Permit Form D
	NA	Trench/Evacuation Permit Form E
	NA	Combined Space Entry Permit From F
	\square	Exclusion zone operations are practiced as instructed.
		✓ Decontamination unit is working properly.
		✓ Workers are using decontamination unit as instructed.
		✓ Workers use personal protective equipment properly.
☑		Set air samples at cardinal compass points around exclusion zone. Check
		throughout the day to ensure proper operation.
		Observe control measures for dust and fugitive materials i.e. watering excavation sites and track out prevention.
		Review sign-in/sign-out log throughout and at the end of the workday.
Ø		Secure the site at the end of the workday
Sar	npling	
NA	Soil Co	onfirmation sampling for any newly excavated areas
\square	·	Stationary Air Monitoring during contaminated soil removal around the perimeter of the exclusion zone
NA		Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil removal
NA		Digitally photograph each sample location and at any place field sampling personnel





$\overline{\mathbf{A}}$		Electronically file photo files into the on-site database
		Complete Field Documentation
	\square	Field Sample Data Sheets (FSDS)
	\square	Logbook
	NA	On-site computer database
$\overline{\mathbf{A}}$		Label each sample media with a unique number
$\overline{\mathbf{A}}$		Seal sample(s) in zip lock plastic bags
Ø		Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory
☑		Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental Samples
Ø		Review and disseminate sample results as received from the laboratories to Project Manager and other appropriate managers and employees
A		Electronically file sample reports into on-site database



Project: 3rd West Sub Station	Date: 01/17/12
Location: 3rd West, 1st South, SLC	Job Number:
Survey Conducted By: <u>Justin Kargis</u>	Title:

Standard	Title	In Compliance	Out of Compliance	D N/A	Corrective Action Taken and
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.			x	
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			х	
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	х	ē		
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			x	
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toe boards shall be installed.			x	
1926.100 (a)	Head protection, where there is a possible danger of head injury.	х			1

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.652 (a) (1)	Excavation protective systems; examination by competent person when less than 5 feet in depth.			х	
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.			х	
1926.20 (b)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.			x	
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toe boards.			x	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			X	
1926.25 (a)	Debris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.			x	
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.			х	
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x	
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.			x	
1926.403 (b) (2)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.	x			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a)	Scaffolding shall have guardrails and toe boards when more than 10 feet high and when less than 45 inches of work space.			х	
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.			х	
1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	х			
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.			х	
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			x	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.		A	x	
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.	x			
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.			х	
1926.102 (a) (1)	Eye and face protection shall be provided.	x			
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.	х			
1926.350 (a)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a ½ fire resistance barrier.			х	

] In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			Х	
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.	x			
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.			x	8
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.	x			
1926.451 (a) (2)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.	x			
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			х	
1926.404 (f)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer or the tool is double insulated.	x			
1926.556 (b) (2)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.			х	
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			х	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.	x			
1926.602 (a) (9)	Bi-directional earth moving equipment shall have audible alarms.	х			
1926.451 (a)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.			х	
1926.550 (b) (2)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.			х	

Exclusion zone active all day.

EZ protocols followed more diligently throughout the day.

-12:30 - 12:45 R&R recommended that water be applied to material displaced from excavation site S.E. of new control building. As this mix of concrete and soil was placed in the dump truck, some airborne dust was observed. R&R brought this to the attention of the on-site CVE inspector who passed the recommendation on to the Newman operator. No water was applied after the recommendation was communicated.

CVE poured the center sections of the switchgear retention walls

9 trucks washed out throughout the day



NA

determined necessary



3RD WEST SUBSTATION REMEDIATION PROJECT HEALTH SAFETY MANAGER (HSM)

		DAILY CHECKLIST
DATE	/:	01/18/11
Ge	<u>neral</u>	
		area Health and Safety Inspection
NA		Review and if necessary update Activity Hazard Analyses (AHA) based on planned site
		activities for the day
NA	\	Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP
NA		Site hazard and safety instruction for all first time employees, contractors or visitors
NA		Complete Employee Meeting Record Form B (where applicable)
NA		Document required Respirator Training completion with Form H
NA	•	Record times and numbers of dump trucks and trailers as they leave the site with
		contaminated material.
NA		Confirm return of waste material manifest documents for each load with site manager.
NA	Compl	ete all CSHASP Forms (for applicable activities planned for that day)
	NA .	Illness/Injury Report Form A
	NA	Site-Specific Training Record Form C
	NA	Hot Work Permit Form D
	NA	Trench/Evacuation Permit Form E
	NA	Combined Space Entry Permit From F
	$\overline{\mathbf{A}}$	Exclusion zone operations are practiced as instructed.
	•	☑ Decontamination unit is working properly.
		☑ Workers are using decontamination unit as instructed.
		Workers use personal protective equipment properly.
V		Set air samples at cardinal compass points around exclusion zone. Check
		throughout the day to ensure proper operation.
		Observe control measures for dust and fugitive materials i.e. watering excavation
		sites and track out prevention.
Ø		Review sign-in/sign-out log throughout and at the end of the workday. Secure the site at the end of the workday
<u>Sa</u>	mpling	
NA	Soil C	onfirmation sampling for any newly excavated areas
		Stationary Air Monitoring during contaminated soil removal around the perimeter of the exclusion zone
N/	4	Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soi

Digitally photograph each sample location and at any place field sampling personnel





	Electronically file photo files into the on-site database
	Complete Field Documentation
$\overline{\mathbf{A}}$	Field Sample Data Sheets (FSDS)
	Logbook
NA	On-site computer database
	Label each sample media with a unique number
	Seal sample(s) in zip lock plastic bags
	Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory
	Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental Samples
	Review and disseminate sample results as received from the laboratories to Project Manager and other appropriate managers and employees
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Project: 3rd West Sub Station	Date: 01/18/12
Location:3rd West, 1st South, SLC	Job Number:
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		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
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1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			х	
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	x			
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			х	
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toe boards shall be installed.			x	
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Standard	Title	In Compliance	Out of Compliance	N/A	Corrective Action Taken and Date
1926.652 (a)	Excavation protective systems; examination by competent person when less than 5 feet in depth.			x	
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1926.20 (b) (1)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.		-	х -	,
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toe boards.			х	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			х	
1926.25 (a)	Debris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.			х	
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.			x	
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x	
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.			x	
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1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.			X	
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			х	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.			х	
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.	х			
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.	1		х	
1926.102 (a) (1)	Eye and face protection shall be provided.	x ,			
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.	x			
1926.350 (a)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a ½ fire resistance barrier.			х	

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1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.			x	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.	x			
1926.451 (a)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.	x			
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			х	
1926.404 (f)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer or the tool is double insulated.	х			
1926.556 (b) (2)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.			х	
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			x	

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Standard	Title				Date
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1926.451 (a) (3)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.			x .	
1926.550 (b) (2)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.			х	

Exclusion zone active all day.

Bi-weekly project meeting held at 9:00.

-discussed environmental items that had come up over the previous weeks.

-EZ protocols, Newman truck wreck covered and emphasized.

8 dump trucks washed out throughout the day.

Improved adherence to EZ procedures observed.



determined necessary



3^{RD} West Substation Remediation Project

HEALTH SAFETY MANAGER (HSM)

		DAILY CHECKLIST
DATE	; <u>:</u> _	01/18/11
Ge	neral	
		area Health and Safety Inspection
NA		Review and if necessary update Activity Hazard Analyses (AHA) based on planned site
		activities for the day
NA	1	Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP
NA	\	Site hazard and safety instruction for all first time employees, contractors or visitors
NA	1	Complete Employee Meeting Record Form B (where applicable)
NA	1	Document required Respirator Training completion with Form H
NA		Record times and numbers of dump trucks and trailers as they leave the site with contaminated material.
NA		Confirm return of waste material manifest documents for each load with site manager.
NA	Compl	ete all CSHASP Forms (for applicable activities planned for that day)
11/1	NA	Illness/Injury Report Form A
	NA	Site-Specific Training Record Form C
	NA	Hot Work Permit Form D
	NA	Trench/Evacuation Permit Form E
	NA	Combined Space Entry Permit From F
		Exclusion zone operations are practiced as instructed.
	E)	Decontamination unit is working properly.
		✓ Workers are using decontamination unit as instructed.
		$oldsymbol{arepsilon}$
		✓ Workers use personal protective equipment properly.
☑		Set air samples at cardinal compass points around exclusion zone. Check throughout the day to ensure proper operation.
		Observe control measures for dust and fugitive materials i.e. watering excavation
		sites and track out prevention.
		Review sign-in/sign-out log throughout and at the end of the workday.
Ø		Secure the site at the end of the workday
<u>Sa</u>	mpling	
NA	Soil C	onfirmation sampling for any newly excavated areas
\square	2011 0	Stationary Air Monitoring during contaminated soil removal around the perimeter of the exclusion zone
N A	A	Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil removal
N.	4	Digitally photograph each sample location and at any place field sampling personnel





Electronically file photo files into the on-site database
Complete Field Documentation
Field Sample Data Sheets (FSDS)
Logbook
On-site computer database
Label each sample media with a unique number
Seal sample(s) in zip lock plastic bags
Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory
Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental Samples
Review and disseminate sample results as received from the laboratories to Project Manager and other appropriate managers and employees
Electronically file sample reports into on-site database



Project: 3rd West Sub Station	Date: 01/18/12
Location: 3rd West, 1st South, SLC	Job Number:
Survey Conducted By: _Justin Kargis	Title:

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.			х	
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			х	
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	х			
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			х	
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toe boards shall be installed.			х	
1926.100 (a)	Head protection, where there is a possible danger of head injury.	x			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and	
Standard	Title				Date	
1926.652 (a)	Excavation protective systems; examination by competent person when less than 5 feet in depth.			х	*	
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.			х		
1926.20 (b) (1)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.			x		
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toe boards.			x		
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			х		
1926.25 (a)	Debris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.			x		
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.			х		
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x		
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.			x		
1926.403 (b) (2)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.	х				

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a)	Scaffolding shall have guardrails and toe boards when more than 10 feet high and when less than 45 inches of work space.			х	
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.			x	
1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	x			*
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.			x	
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			х	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.			x	
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.	х	5		
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.			х	
1926.102 (a) (1)	Eye and face protection shall be provided.	х			
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.	х			
1926.350 (a)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a ½ fire resistance barrier.			x	,

Standard	Title	☐ In Compliance	Out of Compliance	D N/A	Corrective Action Taken and
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			X	Date
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.	x	-		
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.			х	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.	x			
1926.451 (a)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.	x			
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			x	
1926.404 (f) (7)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer or the tool is double insulated.	x			
1926.556 (b)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.			х	
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			х	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.	х			
1926.602 (a) (9)	Bi-directional earth moving equipment shall have audible alarms.	х			
1926.451 (a) (3)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.			x	
1926.550 (b) (2)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.			х	

Exclusion zone active all day.

Bi-weekly project meeting held at 9:00.

- -discussed environmental items that had come up over the previous weeks.
- -EZ protocols, Newman truck wreck covered and emphasized.
- 8 dump trucks washed out throughout the day.

Improved adherence to EZ procedures observed.



determined necessary



3RD WEST SUBSTATION REMEDIATION PROJECT

HEALTH SAFETY MANAGER (HSM)

		DAILY CHECKLIST
DATE	:	01/19/11
Ge	neral	
		area Health and Safety Inspection
NA		Review and if necessary update Activity Hazard Analyses (AHA) based on planned site
1 42	•	activities for the day
NA	\	Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP
NA	1	Site hazard and safety instruction for all first time employees, contractors or visitors
NA	\	Complete Employee Meeting Record Form B (where applicable)
NA	1	Document required Respirator Training completion with Form H
NA		Record times and numbers of dump trucks and trailers as they leave the site with contaminated material.
NA		Confirm return of waste material manifest documents for each load with site manager.
NA	Comple	ete all CSHASP Forms (for applicable activities planned for that day)
	NA	Illness/Injury Report Form A
	NA	Site-Specific Training Record Form C
	NA	Hot Work Permit Form D
	NA	Trench/Evacuation Permit Form E
	NA	Combined Space Entry Permit From F
		Exclusion zone operations are practiced as instructed.
		☐ Decontamination unit is working properly.
		☑ Workers are using decontamination unit as instructed.
		✓ Workers use personal protective equipment properly.
☑		Set air samples at cardinal compass points around exclusion zone. Check throughout the day to ensure proper operation.
		Observe control measures for dust and fugitive materials i.e. watering excavation sites and track out prevention.
☑		Review sign-in/sign-out log throughout and at the end of the workday. Secure the site at the end of the workday
<u>Sa</u>	mpling	
NA	Soil Co	onfirmation sampling for any newly excavated areas
\square	2011 00	Stationary Air Monitoring during contaminated soil removal around the perimeter of the exclusion zone
NA	A	Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil removal
NA.	4	Digitally photograph each sample location and at any place field sampling personnel





⊻	Electronically file photo files into the on-site database
	Complete Field Documentation
5	Field Sample Data Sheets (FSDS)
6	
6	On-site computer database
abla	Label each sample media with a unique number
₹ .	Seal sample(s) in zip lock plastic bags
7	Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory
	Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental Samples
	Review and disseminate sample results as received from the laboratories to Project
	Manager and other appropriate managers and employees
\square	Electronically file sample reports into on-site database



Project: 3rd West Sub Station	Date: 01/19/12
Location: 3rd West, 1st South, SLC	Job Number:
Survey Conducted By: Justin Kargis	Title:

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.			x	
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			x	
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	x			8
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			x	
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toe boards shall be installed.			х	
1926.100 (a)	Head protection, where there is a possible danger of head injury.	х			

Standard	Title	In Compliance	Out of Compliance	□ N/A	Corrective Action Taken and Date
1926.652 (a)	Excavation protective systems; examination by competent person when less than 5 feet in depth.			х	
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.			x	
1926.20 (b)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.			x	
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toe boards.			x	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			х	
1926.25 (a)	Debris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.			x	
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.			х	
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x	
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.			x	
1926.403 (b) (2)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.	х			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a) (4)	Scaffolding shall have guardrails and toe boards when more than 10 feet high and when less than 45 inches of work space.			х	
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.			х	
1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	х			
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.			x	
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			x	
1926.651 (j)	Excavations shall have materials or equipment placed at least 2 feet from the edge.			х	
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.	х			
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.			х	
1926.102 (a) (1)	Eye and face protection shall be provided.	x			
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.	x			
1926.350 (a) (9)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a ½ fire resistance barrier.			х	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			Х	* ,
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.	x			
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.			х	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.	х			
1926.451 (a) (2)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.	x			
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			x	
1926.404 (f) (7)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer or the tool is double insulated.	х			
1926.556 (b) (2)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.			х	
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			х	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.	х		ā	
1926.602 (a) (9)	Bi-directional earth moving equipment shall have audible alarms.	х			*
1926.451 (a)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.			x	
1926.550 (b) (2)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.	20		x	

Exclusion zone active all day.

1 truck washed out throughout the day.

EZ procedures were more thoroughly followed.

Potentially native soil outside the EZ was temporarily exposed and covered up with clean fill near the west end of the switch gear foundation.

Newman cleaned up tracked out native soil at the temporary east EZ gate.





3RD WEST SUBSTATION REMEDIATION PROJECT

HEALTH SAFETY MANAGER (HSM)

DAILY CHECKLIST

		DAILT CHECKLIST
DATE	:	01/20/11
Ge	neral	•
		rea Health and Safety Inspection
NA		Review and if necessary update Activity Hazard Analyses (AHA) based on planned site
147		activities for the day
NA	1	Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP
NA	1	Site hazard and safety instruction for all first time employees, contractors or visitors
NA	1	Complete Employee Meeting Record Form B (where applicable)
NA	1	Document required Respirator Training completion with Form H
NA		Record times and numbers of dump trucks and trailers as they leave the site with contaminated material.
NA		Confirm return of waste material manifest documents for each load with site manager.
NA	Comple	ete all CSHASP Forms (for applicable activities planned for that day)
	NA	Illness/Injury Report Form A
	NA	Site-Specific Training Record Form C
	NA	Hot Work Permit Form D
	NA	Trench/Evacuation Permit Form E
	NA	Combined Space Entry Permit From F
	$\overline{\mathbf{A}}$	Exclusion zone operations are practiced as instructed.
	_	Decontamination unit is working properly.
		✓ Workers are using decontamination unit as instructed.
		✓ Workers use personal protective equipment properly.
☑		Set air samples at cardinal compass points around exclusion zone. Check
ك		throughout the day to ensure proper operation.
		Observe control measures for dust and fugitive materials i.e. watering excavation
		sites and track out prevention.
☑		Review sign-in/sign-out log throughout and at the end of the workday.
☑		Secure the site at the end of the workday
٧		Secure the site at the end of the workday
<u>Sa</u>	mpling	
NA	Soil Co	onfirmation sampling for any newly excavated areas
☑		Stationary Air Monitoring during contaminated soil removal around the perimeter of the exclusion zone
N.	A	Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil removal
N A	4	Digitally photograph each sample location and at any place field sampling personnel
141	•	determined a second





M		Electronically file photo files into the on-site database
		Complete Field Documentation
	\square	Field Sample Data Sheets (FSDS)
	\square	Logbook
	\square	On-site computer database
		Label each sample media with a unique number
\square		Seal sample(s) in zip lock plastic bags
Ø		Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory
团		Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental Samples
Ø		Review and disseminate sample results as received from the laboratories to Project Manager and other appropriate managers and employees
Ø		Electronically file sample reports into on-site database



3rd West Substation Site Project Safety Audit

Project: 3rd West Sub Station	Date: 01/20/12
Location:3rd West, 1st South, SLC	Job Number:
Survey Conducted By: _Justin Kargis	Title:

Standard	Title	[] In Compliance	Out of Compliance	D N/A	Corrective Action Taken and Date
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.			x	
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			х	
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	х			w
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			x	
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toe boards shall be installed.			х	
1926.100 (a)	Head protection, where there is a possible danger of head injury.	x			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.652 (a)	Excavation protective systems; examination by competent person when less than 5 feet in depth.			х	
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.			х	
1926.20 (b)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.			х	
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toe boards.			x	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			x	
1926.25 (a)	Debris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.			x	
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.			х	
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x	
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.			x	
1926.403 (b) (2)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.	x			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a) (4)	Scaffolding shall have guardrails and toe boards when more than 10 feet high and when less than 45 inches of work space.			х	
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.			x	
1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	х			
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.			x	
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			x	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.			x	
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.	x			
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.			х	
1926.102 (a) (1)	Eye and face protection shall be provided.	x			
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.	x			
1926.350 (a)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a ½ fire resistance barrier.			x	

Standard	Title	In Compliance	Out of Compliance	O N/A	• Corrective Action Taken and Date
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			X	
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.	x			
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.			х	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.	x			
1926.451 (a) (2)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.	x			
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			x	
1926.404 (f)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer or the tool is double insulated.	х			
1926.556 (b) (2)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.			х	
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.		2	х	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.	x		¥	
1926.602 (a) (9)	Bi-directional earth moving equipment shall have audible alarms.	х			
1926.451 (a) (3)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.			х	
1926.550 (b) (2)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.			х	

Comments:

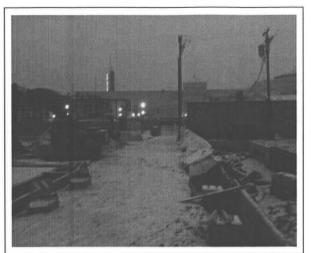
Exclusion zone active all day.

CVE poured flowable thermal backfill around and inside the switchgear foundation walls.

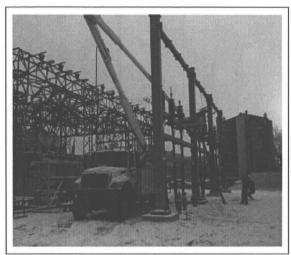
Newman continued excavation in EZ to uncover duct bank and vault space in north end of yard.

CVE line crew set up structural steel in the south east section of the yard.

No dump trucks washed out.



РНОТО 1



РНОТО 2



РНОТО 3



РНОТО 4

R & REnvironmental, Inc.

47 West 9000 South, Suite #2, Sandy, Utah 84070 (801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

DESIGNED BY:	SCALE:	REVIEWED BY: DCR	
DRAWN BY: JMK	DATE 01/16/12	FILE:	

SITE PHOTOGRAPHS

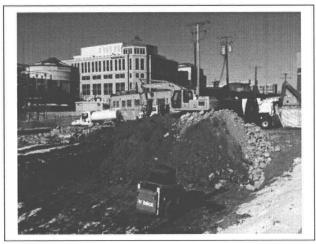




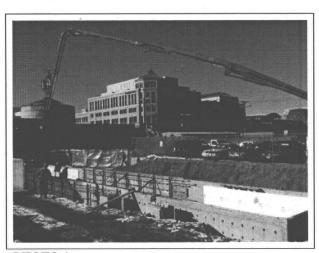
PHOTO 1



РНОТО 2



РНОТО 3



РНОТО 4

R & Renvironmental, Inc.
47 West 9000 South, Suite #2, Sandy, Utah 84070
(801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

DESIGNED BY: SCALE: REVIEWED BY: DCR DRAWN BY: DATE FILE: 01/17/12 **JMK**

SITE PHOTOGRAPHS





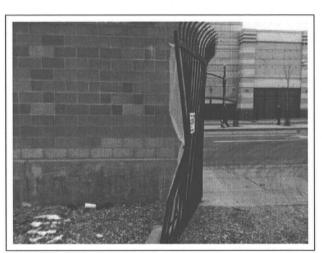
РНОТО 1



РНОТО 2



РНОТО 3



РНОТО 4

R & REnvironmental, Inc.

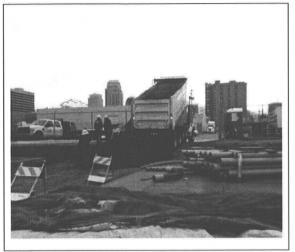
47 West 9000 South, Suite #2, Sandy, Utah 84070 (801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

DESIGNED BY:	SCALE:	REVIEWED BY: DCR	
DRAWN BY: JMK	DATE 01/18/12	FILE:	

SITE PHOTOGRAPHS

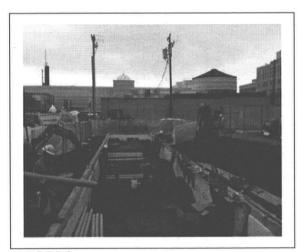




РНОТО 1



РНОТО 2



РНОТО 3



РНОТО 4

R & REnvironmental, Inc.

47 West 9000 South, Suite #2, Sandy, Utah 84070 (801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

DESIGNED BY:	SCALE:	REVIEWED BY: DCR	
DRAWN BY: JMK	DATE 01/19/12	FILE:	

SITE PHOTOGRAPHS

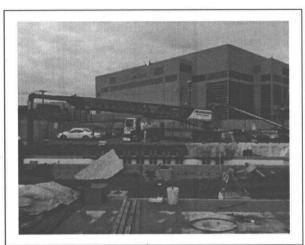




РНОТО 1



РНОТО 2



РНОТО 3



РНОТО 4

R & REnvironmental, Inc.
47 West 9000 South, Suite #2, Sandy, Utah 84070
(801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

DESIGNED BY:	SCALE:	REVIEWED BY:	
DRAWN BY: JMK	DATE 01/20/12	FILE:	

SITE PHOTOGRAPHS



PACIFICORP OPERATIONS - Field Construction Representative Dally Log PROJECT NAME: Third West Sub - Rebuild DATE: Monday, January 16, 2011 PO & Work Order NO.: 3000078050 / 10035803 MAIN CONTRACTOR: Cache Valley Electric Crew Start Time: 7:00 Crew Stop Time: 16:50 Tot Hrs mns: 16:55 FCR Start Time: 6:41 FCR Stop Time: Tot Hrs mns: Use military time format 00:00 **WEATHER CONDITIONS:** Snow, 25-degrees in AM, snowed til noon, 30 degrees in the PM DESCRIPTION: (work performed, general comments, instructions to contractor, # of crew members onsite.) R&R set up four monitors. The CVE fab crew voted to go home because of the weather this morning. Much of the EZ fencing was blown down over the weekend. Newman crews spent the morning getting the fence reinstalled and modified the fence to include the 46 kV vault area in the EZ. Newman excavated and loaded two trucks for a total of 89. The new Newman crew excavated for the new 46 kV UG vaults They have exposed the ductbank in the north end of the excavation and will now hold off until we can get the 46 kV cables de-energized. hopefully tomorrow. The other Newman crew has been breaking out concrete and excavating near the old 46 kV vault. Newman also started breaking out the top of the 4 kV switchgear vault/basement on the north end of the old control building. 'We were advised after lunci that one of the Newman trucks hauling spoils to Clean Harbors had slid off the road after exiting I-80, had tipped over and spilled the spoils Newman is working with Clean Harbors to dean up the spill. CVE line crew arrived before lunch and has been removing the jumpers, insulators, arresters, potheads and strictural steel for the Jordan and Gadsby terminations in the 46 kV yard. They did a trial pull on one of the cables and it moved easily. They will return on Wednesday to work on removing the cables. CVE Line Crew = 5. CVE Fab Crew = 7 . Newman = 10 . R&R = 1. IF WORKING IN ENERGIZED SUBSTATION: Dispatcher login, name and time: Blake Spence 0641 Dispatcher logout, name and time: Mike Spence 1656 DISCREPANCIES: IMMEDIATE CORRECTIVE ACTION TAKEN: 11/22 - We found two fdns in the old sub that were under the yard rock and not included in Newman has removed. the details of concrete to be removed from the site 11/16 - No resolution on the 20' ground rod issue. CVE to provide per unit price to drill concrete. Will excavate to determine dimensions. 11/30 - Identified an additional retaining wall that is below grade and does not show on the 12/14 - Communications battery rack extends into the northeast doorway. Capital Electric Sent email and pictures to Roger F to confirm that this conflict is indicates that they were told to proceed with the install by Barry Andersor acceptable to RMP. Under evaluation by Comm Group 12/15 - Excavated to locate the 46 kV cables exiting the west side of the yard. Dug 8' and Sent e-mail to Roger F. didn't find them. Will try again. Actual deoth will be much deeper than design of new bank **DELAYS OR LOST TIME ENCOUNTERED:**

DELATS ON LOST TIME ENCOUNTERED.

EQUIPMENT (working, delivered, idle):

CVE fab crew: Portable toilet (2), foridift, 1 dumpster, office trailer, conex, exclusion zone conex (2), tool trailer, crew truck, boom truck. Newman: portable wash-down structure, trachoe, bobcat, mini-ex, power washer, water truck, compactor (2), backhoe.

OSHA Recordable Safety Incidents: Reported by: Time:



Russ Johnson

PACIFICORP OPERATIONS - Field Construction Representative Daily Log

PROJECT NAME:	Third Wes	t Sub - Rebuild	DATE : _	Tuesd	lay, January 17	7, 2011
PO & Work Order NO. :	30000780	50 / 10035803	MAIN CONTR	ACTOR	: Cache Valle	y Electric
Crew Start Time:	7.00	Crew Stop Time:	17:2 0		Tot Hrs mns:	10:20
FCR Start Time:	6:49	FCR Stop Time:	17:20	-	Tot Hrs mns:	10:31
Use military time format 00:00		T GIT GTOP TIME	11.20			10.01
WEATHER CONDITIONS:		Clear, 18 degre	es in AM, 40 deg	rees In P	M	
DESCRIPTION: (work perfo R&R set up four monitors Recei						
preparation for pouring the middle Wilding. The west section was pour placed the grating on the oil control excavation area as well as breaking the Crew = 7, Newman = 11,	oured on 1/9 so we ainment. Newman ing out the old trans	have exceeded the seven day loaded out 9 trucks for a total sformer/switchgear foundation	requirement. (7 d of 98. N ewman is and vault just sout	ay break o breaking i	came in at 3390) up concrete in th	. CVE e main
IF WORKING IN ENERGIZED				· · · · · · · ·		
Dispatcher login, name and time:						
Dispatcher logout, name and time DISCREPANCIES:	i Jim Bowman		IMMEDIATE CO	DDECTI	/E ACTION TA	KEN:
DIOOREI AITOIEO.		-	IIIIIII DIATE OO	IXIXEOTI	ACTION 12	<u> </u>
	_					
11/16 - No resolution on the 20' groun	nd rod issue.		CVE to provide per u	nit price to	drill concrete.	
11/30 - Identified an additional retaini Demo Plan.	ng wall that is below	grade and does not show on the	Will excavate to deter	rmine dime	nsions.	
12/14 - Communications battery rack			Sent email and pictur	-		
indicates that they were told to proceed 12/15 - Excavated to locate the 46 kV			acceptable to RMP. Sent e-mail to Roger		uation by Comm G	roup
didn't find them. Will try again. Actua			och e-mail to Roger	1.	•	
DELAYS OR LOST TIME EN	COUNTERED:					
EQUIPMENT (working, deliv	ered, idle):			,		
CVE fab crew: Portable toilet (2), fori wash-down structure, trachoe, bobca	klift, 1 dumpster, offic			rew truck, b	ooom truck. Newm	an: portable
OSHA Recordable Safety In	cidents:			Reported	by:	 Time:
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			 		<u>_</u>	



Russ Johnson

PACIFICORP OPERATIONS - Field Construction Representative Daily Log PROJECT NAME: Third West Sub - Rebuild DATE: Wednesday, January 18, 2012 3000078050 / 10035803 MAIN CONTRACTOR: Cache Valley Electric PO & Work Order NO.: 7:00 17:00 Crew Start Time: Crew Stop Time: Tot Hrs mns: 10:00 FCR Start Time: 17:30 6:49 FCR Stop Time: Tot Hrs mns: 10:41 Use military time format 00:00 **WEATHER CONDITIONS:** Overcast and 36 degrees in AM, Rain and 35 degrees in the PM DESCRIPTION: (work performed, general comments, instructions to contractor, # of crew members onsite.) R&R set up four monitors. CVE fab crew stripped forms and cleaned up the switchgear area and continued backfilling inside the switchgear and placing bracing for 6" elbows. CVE line crew came around noon and removed the 46 kV cable, from inside the sub to the vaults on 400 West. The bore pipe shielding the 46 kV cables only ran about two feet into the ground. CVE was able to pull the cables from the vault for the Gadsby line. We will still need to excavate near the wall and see if we can find the conduits. Newman crew loaded out 8 trucks, for a total of 106. Newman completed the removal of the north transformer pad and switchgear foundation along with the vault that was just south of the new control building. Newman started excavating for Vault #1 and has exposed the existing duct bank. CVE Line Crew = 5, CVE Fab Crew = 6. Newman = 9. Miller = 5, R&R = 1, Wilding = 1. IF WORKING IN ENERGIZED SUBSTATION: Dispatcher login, name and time: Gus Montanez 0649 Dispatcher logout, name and time: Manny Luhaun 1725 DISCREPANCIES: IMMEDIATE CORRECTIVE ACTION TAKEN: 11/30 - Identified an additional retaining wall that is below grade and does not show on the Will excavate to determine dimensions. 12/14 - Communications battery rack extends into the northeast doorway. Capital Electric Sent email and pictures to Roger F to confirm that this conflict is acceptable to RMP. Under evaluation by Comm Group indicates that they were told to proceed with the install by Barry Andersor 12/15 - Excavated to locate the 46 kV cables exiting the west side of the yard. Dug 8' and Sent e-mail to Roger F. didn't find them. Will try again. Actual depth will be much deeper than design of new bank DELAYS OR LOST TIME ENCOUNTERED: EQUIPMENT (working, delivered, idle):

CVE fab crew: Portable toilet (2), fbrklift, 1 dumpster, office trailer, conex, exclusion zone conex (2), tool trailer, crew truck, boom truck. Newman: portable



OSHA Recordable Safety Incidents:

wash-down structure, trachoe, bobcat, mini-ex, power washer, water truck, compactor (2), backhoe.

Russ Johnson

Time:

Reported by:

PACIFICORP OPERATIONS - Field Construction Representative Daily Log

PROJECT NAME:	Third Wes	t Sub - Rebuild	DATE :	Thursda	ay, January 1	9, 2011
PO & Work Order NO. :	30000780	50 / 10035803	MAIN CONTRA	CTOR :	Cache Valle	y Electric
Crew Start Time:	7:00	Crew Stop Time:	17:20		Tot Hrs mns:	10:2 0
FCR Start Time:	6:45	FCR Stop Time:	17:30		Tot Hrs mns:	10:45
Use military time format 00:00		, of total filling				
WEATHER CONDITIONS:		Rain 36 degre	es in AM, 40 degre	oe in DM		
WEATHER CONDITIONS.	-	Kaiii, 30 degie	es in Airi, 40 degre	es III FIV	<u>'I</u>	
DESCRIPTION: (work perfor R&R set up four monitors.		omments, instructions to tout the cables for the Jordan				
crew installed conduit elbows and around the duct bank north of the and along the east and south side	new control buildin	ng and cut off the conduits. No	evrman and CVE bac	kfilled insi	ide the switchg	
IF WORKING IN ENERGIZED	SUBSTATION:		·			
Dispatcher login, name and time:	Kim Batt 064					
Dispatcher logout, name and time	: Manny LuHai	un 1730				
DISCREPANCIES:			IMMEDIATE COR	RECTIVI	E ACTION TA	KEN:
11/30 - Identified an additional retainir	ng wall that is below o	grade and does not show on the	Will excavate to determ	nine dimens	sions.	
Demo Plan. 12/14 - Communications battery rack	extends into the north	heast doorway. Capital Electric	Sent email and pictures	_		
indicates that they were told to proceed 12/15 - Excavated to locate the 46 kV	cables exiting the we	Barry Andersor	acceptable to RMP. Up Sent e-mail to Roger F		ation by Comm G	iroup
didn't find them. Will try again. Actua			Sent e-main to Roger 1			
DELAYS OR LOST TIME EN	COUNTERED:					
EQUIPMENT (working, deliv CVE fab crew: Portable toilet (2), fork wash-down structure, trachoe, bobca	dift, 1 dumpster, office			w truck, bo	oom truck. Newm	nan: portable
	-	-			_	
OSHA Recordable Safety Inc	cidents:		Re	ported t	oy:	Time:
<u> </u>		 .				



Russ Johnson

PACIFICORP OPERATIONS - Field Construction Representative Daily Log

PROJECT NAME:	Third Wes	st Sub - Rebuild	DATE :Frida	y, January 20,	2012
PO & Work Order NO. :	30000780	050 / 10035803	MAIN CONTRACTOR :	Cache Valle	y Electric
Crew Start Time:	7:00	Crew Stop Time:		Tot Hrs mns:	17:0 0
FCR Start Time:	6:42	FCR Stop Time:	16:45	Tot Hrs mns:	10:03
Use military time format 00:00				•	
•					
WEATHER CONDITIONS:		Overcast - 40 degre	es in AM, 45 degrees in the	ne PM	
DESCRIPTION: (work perf	ormed, general c	omments, instructions to	contractor, # of crew me	mbers onsite	.)
R&R set up four monitors. over the conduits, both inside an test on the first truck and took of the north side. Newman backfill arrestors, and CCVTs for the earliest of the conduction of the earliest or th	nd outside the switch ylinders. N ewman g led around the switch	ot the excavation down to grad	de the foundation was colore e for the Vault #1 and cut off rial. CVE line crew erected the	d red. Wilding the conduits cone steel for the	did a s lump mi ng in from
IF WORKING IN ENERGIZE	D SUBSTATION:		·	<u> </u>	
Dispatcher login, name and time			 -		
Dispatcher logout, name and tin	ne: Barry Nielsor	า 1645			
DISCREPANCIES:			MMEDIATE CORRECTIV	E ACTION TA	KEN:
		·			
					
·					<u> </u>
11/30 - Identified an additional retail Demo Plan.	ning wall that is below	grade and does not show on the	Mill excavate to determine dimen	sions.	
12/14 - Communications battery rac	k extends into the north	heast doorway. Capital Electric	Sent email and pictures to Roger	F to confirm that	this conflict is
indicates that they were told to oroc			acceptable to RMP. Under evalu	ation by Comm G	roup
12/15 - Excavated to locate the 46 kddn't find them. Will try again. Acti			Sent e-mail to Roger F.		ŀ
DELAYS OR LOST TIME EI		deeper trial design of new bank	<u> </u>	· -	
				·	
FOURDMENT (marking 1 4)					
EQUIPMENT (working, deli CVE fab crew: Portable toilet (2), for		e trailer coney evolusion zone co	nev (2) tool trailer crew truck h	oom truck News	an nortable
wash-down structure, trachoe, bob			• •	oom tuck. Newn	iaji. portable
OSHA Recordable Safety I	ncidents:		Reported	hv:	Time:
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··· <u>···</u>					



Russ Johnson



January 18, 2012

Laboratory Code: Subcontract Number:

res Na

Laboratory Report: Project # / P.O. #

RES 227872-1 None Given

Project Description:

3rd West Sub RMP

David Roskelley R & R Environmental 47 West 9000 South #2 Sandy UT 84070

Dear Customer,

Resen/oirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 227872-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely.

Jeanne Spencer Orr

President

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number:

RES 227872-1

Client:

R & R Environmental

Client Project Number / P.O.: None Given

Client Project Description:

3rd West Sub RMP

Date Samples Received:

January 17, 2012

Analysis Type:

TEM, AHERA

Turnaround:

24 Hour

Date Samples Analyzed:

January 18, 2012

Client	Lab		Area	Air	Number of	Analytical	Asbestos	Filter
ID Number	ID N	umber	Analyzed	Volume Sampled	Asbestos Structures Detected	Sensitivity	Concentration .	Loading
			(mm²)	(L)		(s/cc)	(s/cc)	(s/mm²)
3W-011812 SW	EM	851263	0.0900	934	ND	0.0046	BAS	BAS
3W-011612 NW	EM	851264	0.1000	813	3	0.0047	0.0142	30.0
3W-011612 NE	EM	851265	0.0900	928	1	0.0046	0.0046	11.1
3W-011612 SE	EM	851266	0.0900	927	ND	0.0046	BAS	BAS

NA = Not Analyzed

Filter Material = Mixed Cellulose Ester

ND = None Detected

Filter Diameter = 25 mm

BAS = Below Analytical Sensitivity Average Grid Opening in mm² = 0.010 Effective Filter Area = 385 sq mm

DATA QA

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE II. SUMMARY OF ANALYTICAL DATA

RES Job Number:

RES 227872-1

Client:

R & R Environmental

Client Project Description:

Client Project Number / P.O.: None Given

3rd West Sub RMP

Date Samples Received:

January 17, 2012

Analysis Type:

TEM, AHERA

Turnaround:

24 Hour

Date Samples Analyzed:

January 18, 2012

Client ID Number	Lab ID No	umber	Asbestos Mineral					Structures >5 Microns	**Excluded Structures	Asbestos Structures	
				Ast	estos Str	ucture Typ	es*	in Length		for	
		*	-	Fibers	Bundles	Clusters	Matrices			Concentration	
3W-011612 SW	EM	851263	NO	. 0	0	0	0	0	0		
3W-011612 NW	EM	851264	Chrysotile	0	3	0	0	0	0	3	
3W-011612 NE	EM	851265	Chrysotile	1	0	0	0	0	0	1	
3W-011812 SE	EM	851 2 66	ND	0	0	0	0	0	0	. 0	

^{*}See Analytical Procedure for definitions

^{**}C = Excluded from total due to lack of confinnation

^{**}L = Excluded from total for length less than 0.5 micron (AHERA only)

^{**}A = Excluded from total due to i ncorrect as pect ratio

ND = None Detected

Due Date: 1/18/12

Due Time: 8:50 c

8801 Lagan St. Oenver, CO 80216 • Pr; 303 884-1968 • Fax 303-417-4275 • Toll Fige :866 RESI-BNV

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	eurdy, let 84	070									Fax: Collipagor: 80 (Sull-1035								Fax:						
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NOTE: RE	l will analyze incoming sampl			nd will not be resp	onsible tor enors or omis	sions in cak	culations	s resultir	g fron	n the inao									nt8tivs :	grees t	hat subn	nission of	the following sa	nples for rsq	uested
analysis as	indicated on this Onainfol Cu	ustody shall constitute	g an anafytical ae	ryices agrewnent	win payment terms of Ni	: i 30 days,	failura l	o compl	y with	payntent	ems	may res	unt in	9 1.5%	month	iy imei	ast sufch	arge.							 -
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Attachment I

Key to Count Sheets Count Sheets Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

Asbestos Type A = Amosite

 $\begin{array}{lll} A &=& Amosite & F &=& Fiber \\ An &=& Anthophyllite & B &=& Bundle \\ C &=& Chrysotile & C &=& Cluster \\ Cr &=& Crocidolite & M &=& Matrix \\ T &=& Tremolite & & & & & \end{array}$

ND = no structures detected

M = other structure associated with a matrix

NAM = Non Asbestos Mineral

XGB = partly obscured by a grid bar

Sizing Conversion

1 length unit = 5 mm on screen = 0.278 micron

1.80 length units = 0.5 micron

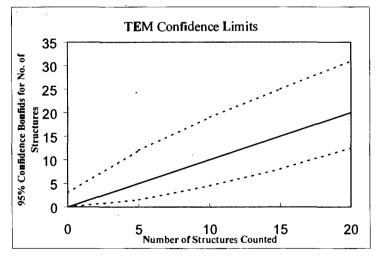
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

TEM Analysts

Jeanne S. Orr Nathan DelHierro Angela Heitger Jonathan Bernard Paul D. LoScalzo Mark Steiner Norberto Zimbleman Robert Workman

Structure Types



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Reservoirs Environmental, Inc. TEM Asbestos Structure Count

REI
JEOL 100 CX NS
100 KV
ZOKX) IOKX
0.01
0.28 um
0.0\$6 um
385

R+R
A
934
1/07/12
227872
851263

Analyzed by	JB
Analysis date	divliz
Method (D=Diract, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	Alt
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect P	reps Only):
Fractian of primary filter used	
Total Resuspension Volume (ml)	Ţ
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure	No. of St	ructures	Dime	nsions	Identification	Mineral Class				1 = yes, blank = no			
	Gird Opening	Туре	Primary	Total	Length	Width	Taoin, Taoin	Amphibole			Sketch/Comments	Sketch	Photo	EDS	
A	K5-4	MD								·					
ļ	1+5-4	ND			P	10 A	70	enten f	خي ک	/ de	bus				
	615-4	ND			R	BB	80 %	6 inhat	5	de de la	wis	·			
	F5-4	ND		·			. /					! 			
	E5-4	ND					. 4	B 1/18/12	_						
B	X5-1	QV						/ /							
,	1+5-1	M													
	G15-1	ND					·	-							
	F5-1	ND													

Reservoirs Environmental, Inc. TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX NS
Voltage (KV)	100 KV
Magnification	20KX iOKX
Grid opening area (mm2)	0.01
Scale: IL=	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

RER
A
813
1/02/12
227872
851264

F-Factor Calculation (Indirect P	reps	Ont	y):	
Fraction of primary filtsr used				
Total Resuspension Volume (ml)	T			
Volume Applied to secondary filter (ml)				

Analyzed by	JB
Analysis date	distiz
Method (O=Direct, I=Indirect,	
IA=Indirect, ashed)	<u> </u>
Counting rules (ISO, AHERA, ASTM)	Alt
Grid storage location	Month Analyzed
Scope Alignment_	Date Analyzed

Grid	Grid Opening	Structure	No. of St	ructures	Dime	nsions	Identification	Mineral Class				1 = y	es, blank	= no
		Туре	Primary	Total	Length	Width		Amphibole	· с	NAM	Sketch/Comments	Sketch	Photo	EDS
LA	K3-6	ND							· ·					
	H3-6	1/0			Pm	o A	7	9.6. nbn	6	5-	70/ dh	19		
	K4-6	MD		,	Pro		ld	of un ten	4	5-	7 % de bri	5		
	144-6	WD			•									,
	HU-1	ND												
<u>C</u>	K4-1	B			7	6	CD		1					
,		B		2	9	2	CD		/	-		. `		
	H4-1	ND					<u> </u>							
	614-1	ND											·	
	F4-1	ND												

Reservoirs Environmental, Inc. TEM Assestes Structure Count

LAB ŅAI	ME REI		Lab Job Number: 227 Lab Sample Number 87			72			Analyzed by: Analysis Date:	1/18/12				
	Grid	Structure	No. of St	ructurae	T	nsions		<u> </u>	neral Clas		Aralysis Date.		es, blank	= no
Grid	Opening	Туре	Primary	Total	Length	Width	identification	Amphibole		NAM	Sketch/Comments	Sketch	i 1	EDS
	E4-1	B		3	6	2	CD_		~		\ \ \			
		·		·			. /-							
							B 1/18/	/12						
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Reservoirs Environmental, Inc. **TEM Asbestos Structure Count**

Laboratory name:	REI
Instrument	JEOL 100 CX (N)S
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	. 385
Secondary Filter Area (mm2)	
QA Tyoe	

RTR
A
278 928
1/17/17
227872
851265

Lab Job Number:	227872
Lab Sample Number:	851265
F-Factor Calculation (Indirect Pr	reps Only):
Fraction of primary fitter used	
Total Resuspension Votuma (mi)	
Volume Applied to secondary filter (ml)	

Analyzed by	JR
Analysis date	118/12
Method (D=Qlrsct, l=indirect, IA=Indirect_ashed)	
Counting miles (ISO, AHERA, ASTM)	Alt
Grid storage lecation	Month Analyzed
Scope Alignment	Date Analyzed

Grki	Grid Opening	Structure	No. of St	ructures	Dime	nsions	Identification Mineral Class					1 = y	es, blank	= no
<u> </u>	Ond Opening	Туре	Primary	Total	Length	Width	, dona dation	Amphibole	· c	NAM	Sketch/Comments	Sketch	Photo	EDS
A	H4-4	ND				Pu	12 A	70 h. ut	mt		2-10/ debu	5		
	614-4	ND								·				
	F4-4	F			2	(CD		/		_			
	E3-1	ろり				-	Pup Ba	0 % in for 1	7-10	S/o de	bus.			
3	145-1	ND												
	G15-1	ND				:		B	1/18/13					
,	F5-1	ND						7/						
	E5-1	M												
	C5-1	ND				.	1							

Reservoirs Environmental, Inc. TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX (N)S
Voltaae (KV)	100 KV
Magnification	ZOKX 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	. 385
Secondary Filter Area (mm2)	
QA Type	

Client :	R+R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	927
Date received by lab	ilorliz
Lab Job Number:	227872
Lab Sample Number:	851260

Analyzed by	JB
Analysis date	dirle
Method (D=Oirect, I=Indirect,	
IA=Indirect, ashed)	
Counting miles	
(ISO, AHERA, ASTM)	Alt
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation	(Indirect	Preps	Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (mi)	

Grid	Grid Opening	Strncture	No. of St	ructures	Dime	nsions_	Identification	ion Mineral Class			·	1 = yes, blank = no		
Ond	Grid Opening	Туре	Primary	Totai	Length	Width	Identification	Amphibole	· c	NAM	Sketch/Comments	Sketch	Photo	EDS
A	K4-3	ND									,			
	H4-3	ND			Pro	o A	80	Vain Frut	5%	del	иS			
	64-3	ND			Pin	0B	900	Low tout	50	deli	x>			
	F4-3	ND			•									
	E4-3	ND_						18 11	18/12					
3	H4-(ND					,		/					
	64-1	ND												
	F4-1	ND						·	·					
	E4-1	an						,			·			
												,		

Analytical Procedures - AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber: is a structure having a minimum length greater than or equal to 0.5

micron with an aspect ratio of 5:1 or greater with substantially parallel

sides.

Bundle: is a structure composed of three or more fibers in parallel arrangement,

with each fiber closer than the diameter of one fiber.

Cluster: is a structure with fibers in random arrangements such that all fibers are

intermixed and no single fiber is isolated from the group.

Matrix: is a fiber or fibers with one end free and the other end embedded or

hidden by a particulate. The exposed fiber end must meet the fiber

definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50th structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm² clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

Equations Used for Calculations

Area Analyzed, $mm^2 = \# GO \text{ counted } x \text{ Average } GO \text{ Area } (mm)$

Concentration, s/cc = $\frac{\text{\# Asbestos Structures}}{\text{\# GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm}^2)}{\text{Average GO area (mm}^2)} \times \frac{\text{JL}}{\text{1000cc}}$

Filter loading, s/mm² = # Asbestos structures Area Analyzed (mm²)

GO = TEM grid opening



January 19, 2012

Laboratory Code: Subcontract Number: RES NA

Laboratory Report: Project # / P.O. #

RES 227957-1 None Given

Project Description:

3rd West Sub - RMP

David Roskelley R & R Environmental 47 West 9000 South #2 Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AlHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 227957-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products pr analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely.

Jeanne Spencer Orr

President

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Nu mber:

RES 227957-1

Client:

R & R Environmental

Client Project Number / P.O.: None Given

Client Project Description: Date Samples Received:

3rd West Sub - RMP

Analysis Type:

January 18, 2012 TEM, AHERA

Turnaround:

24 Hour

Date Samples Analyzed:

January 19, 2012

Client	Lab		Area	Air	Number of	Analytical	Asbestos	Filter
ID Number	ID No	umber	Analyzed	Volume Sampled	Asbestos Structures Detected	Sensitivity	Concentration	Loading
			(mm²)	(L)		(s/cc)	(s/cc)	(s/mm²)
3W-011712 NW	EM	851917	0.0900	882	NO	0.0049	BAS	BAS
3W-011712 SW	EM	851918	0.1000	120	ND	0.0321	BAS	BAS
3W-011712 NE	EM	851919	0.0900	889	ND	0.0048	BAS	BAS
3W-011712 SE	EM	851920	0.0900	864	ND	0.0050	BAS	BAS

NA = Not Analyzed

ND = None Detected

BAS = Below Analytical Sensitivity

Average Grid Opening in mm² = 0.010

Filter Material = Mixed Cellulose Ester Filter Diameter = 25 mm

Effective Filter Area = 385 sq mm

DATA QA

Due Date: 1:19-12 Due Time: 7500

S801 Legrel St Derner, CO 80216 - Ph; 303 964-1986 - Pea 303-477-4275 - Toil Free: 866 RESI-ENV

Pager : 303-509-2098

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			INVOICE TO: (IF	DIF	FERE	NT)										co	NTAC	INF	ORM.	ATION:			
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						Col	pagor	80	7	या	-14	735	,			19	Cell/pager:						
Project Number ana/o	for P.O. #:							Pin	Į Data	Oolm	ouip)	o Email	Addi	015:									
Project Description/Le	ocation: 30° West Sub - 12	MP							<u>Jeei</u>	12 (<u>(i)</u>	<u>M</u>	en	v)re	<u>.ce</u>	m							
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PLM / PCM /TE	EM) RU5H (Some Day) _X PRIOF	RTY (Next Day)S	TANDARD			П				T	Т				П		,	ir = A		8	Bulk = B		
	(Rush PCM = 2hr, T	EM = 6hr.)]				1									D	ust = 1	<u> </u>	Р	aint = P		
CHEMISTRY	LABORATORY HOURS: Weekdays: S]													S	ioll = \$;	W	/ipe = W		
Metal(s) / Dust	RUSH 24 hr.			1	괃						İ						Sw	ab = \$	W	F	= Food		
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Fume Scan / To	CLP		turnarounds.**	Point Count	Preps			Metals Scan			ļ	Quantification		1	Jantification	î î			0=	Other			
Organics	24 hr 3 day _	5 Day		કુ	, "			I				틸	5	اءا	E		"AST	M E17	2 appr	ovod wipe	media only**	·]	
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Salmonella, Lis		r3-5 Day		ğ	1. 7 1SC		9,0	멸		١.	.		įį	3	13	ž							
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Special Instruc	ctions:			र्ड	TEM - AHE SemHqvant,	7400A.	 Total, Respirable 	8 .	ORGANICS - METH	Salmonella: +/-	Listeria:			S.aureus:	. i	<u> </u>) e	Code	# Containe	D-44	· •	EMN	umber (Laborato
] 🚉	- <u>F</u>	, S	15	METALS RCRA 8,	₽¥	Sal	3 3	\$ 1	Coifor	S. S.	5 5 2	≨	وَ حَ	Matrix	ج اچ	Date Collected	Time Collected	اہ	Uso Only)
Client samp	ole ID number (Sample ID's	must be unique)		₹	7EM Semi	PCM	DUST	₹ SC	ĕ		MI	CROB	iOL			Q	Sample Volume (L) / Area	۳	<u>ڍ</u> (mm/dd/yy	hh/min p/p		
1300-0	011712 NW				X								-				8 32	A	E	21/17/18	2	30	1717
2 3W-0	7171251		···	Г	1						T	П			П		120				Ţ	T	15
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10		··· · · · · · · · · · · · · · · · · ·		1							Τ	\prod		П				П					
Number of sam	ples received:	(Additional sar	nples shall be listed on	atta	ched Id	ong fo	.m.)							1. 1.	-11-		L						
NOTE: RSI wil	Ill onalyze incoming samples based upon information racely dicated on this Chain of Justony shall constitute an applying	ed and will not be responsib	le for orrors or omissione in o	aloula	dons res	utting f	from t	he inacc	aracy	of origi	fnol c	ots. By	sign	ing cito	nt/com	any rop	resontativ	e agroo	s that s	o noissimal.	f tha following	sampaos for	roquestod
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	(msn										,						775	130		(57	22.	20	



January 20, 2012

Laboratory Code:

RES

Subcontract Number:

NA

Laboratory Report: Project # / P.O. #

RES 228051-1 None Given

Project Description:

3rd West Sub - RMP

Eldon Romney R & R Environmental 47 West 9000 South #2 Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 228051-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer Orr

President

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number:

RES 228051-1

Client:

R & R Environmental

Client Project Number / P.O.: None Given

Client Project Description: Date Samples Received:

3rd West Sub - RMP

Analysis Type:

January 19, 2012

Turnaround:

TEM, AHERA 24 Hour

Date Samples Analyzed:

January 20, 2012

Client ID Number	Lab ID N	umber	Area Analyzed	Air Volume Sampled	Number of Asbest os Structures Detected	Analytical Sensitivity	Asbestos Concentration	Filter Loading
			(mm²)	(L)	Detected	(s/cc)	(s/cc)	(s/mm²)
3W-011712 SW	EM	852882	0.0800	986	ND	0.0049	BAS	BAS
3W-011712 NW	EM	85288 3	0.0800	986	ND	0.0049	BAS	BAS
3W-011712 NE	EM	852884	0.0800	986	ND	0.0049	BAS	BAS
3W-011712 SE	EM	852885	0.0800	983	ND	0.0049	BAS	BAS

NA = Not Analyzed

Filter Material = Mixed Cellulose Ester

ND = None Detected

Filter Diameter = 25 mm

BAS = Below Analytical Sensitivity Average Grid Opening in mm² = 0.010 Effective Filter Area = 385 sq mm

DATA QA

Due	Date:	1.	24.12
Due	Time:		8500

REILAB RESERVOITS ENVIRONMENTAL, INC... 580 | Loger St. Denver, CO 80216 - Ph; 303 984-1986 - Fax 303-477-4275 - Toll Fine :000 RESI-ENV

Page ____1__ or _____

Pager: 303-509-2008 INVOICE TO: (IF DIFFERENT) CONTACT INFORMATION: Company Environmento Dave Roskelley Contact Address: Address: Phone: Fax: Fax: Cell/pager Project Number and/or P.O. 9 dave @ rrenviro.com Project Description/Locason: SUB- KMP REQUESTED ANALYSIS **VALID MATRIX CODES** LAB NOTES: ASBESTOS LABORATORY HOURS: Weekdays: 7am - Tpuri RUSH (Same Day) X PRIORITY (Next Day) STANDARD Bulk = B Air = A (Rusti PCM = 2hr, TEM = 6hr.) Dust = D Paint = P CHEMISTRY LABORATORY HOURS: Weekdays: 8am - 5pm Soil = S Wipe = W Metal(s) / Dust RUSH 24 hr. 3-6 Day Swab = SW F = Food **Prior notification is RCRA 8 / Metals & Welding Drinking Water = DW | Waste Water = WW RUSH ___ 5 day ___10 day required for RUSH Point Count Fume Scan / TCLP O = Ottier tumarounda.** Organics 24 tir. ___ 3 day ___5 Day "ASTM E1792 approved wipe media only" MICROBIOLOGY LABORATORY HOURS: Weekdays: 9ami - 6pin E.coll O157:H7, Coliforms, \$.aureus 24 tır. 2 Day 3-5 Day Salmonella, Listeria, E.coll, APC, Y & M 48 Hr. 3-5 Day RUSH 24 Hr. 48 Hr. Mold 3 Day "Turner out of three eareblish a faboratory priority, subject 10 faboratory volume and are not guaranteed. Additional fees apply for affarhours, weakons and holidays." Matrix Code Special Instructions: EM Nutnitier (Leborator) # Contair Data Time Use Only) Collected Collected Client sample ID number (Sample ID's miss be unique) MICROBIOLOGY 986 පිවැපිනි 3 0117112 83 84 28 9 10 Number of samples received: (Additional samples shall be listed on attached long form.) NOTE: REI will analyze incoming sentplus bees the superinformace and will not be responsible for errors or omissions in calculations against the inaccuracy of original data. By signing disnutcompany representative agrees that submission of the following samples for requested analysis as indicated on this Chapt of Custody shall constitute an analytical services agreement with payment terms of NET 30 days, failure to comply with payment terms are result in a 1.5% monthly interest surcharge. Dale/Time: Oli [7] Relinquished By: Sample Condition: On Ice Sealed Intact Laboratory Use Only Yes / No Yes/No Yes/No Temp. (F°) Received By: Date/Time: Carrior: Results: Contact Car Phone Email Fax Date หา 7 Time 8:150 Initials **23**Contact Ptiotie Email Fax Date Time Initials Contact Phone Email Fax Dale Contact Ptyone Email Fax Initials

> 1201 185 1827 7-2011_version 1

Attachment I

Key to Count Sheets Count Sheets Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

Asbestos Type

 $\begin{array}{lll} A &=& Amosite & F &=& Fiber \\ An &=& Anthophyllite & B &=& Bundle \\ C &=& Chrysotile & C &=& Cluster \\ Cr &=& Crocidolite & M &=& Matrix \end{array}$

T = Tremolite

ND = no structures detected

M = other structure associated with a matrix

NAM = Non Asbestos Mineral

XGB = partly obscured by a grid bar

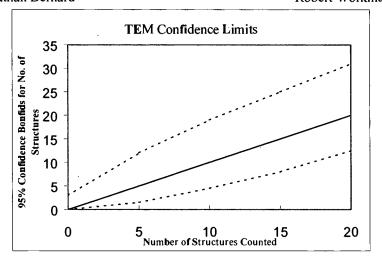
Sizing Conversion
1 length unit = 5 mm on screen = 0.278 micron
1.80 length units = 0.5 micron
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

TEM Analysts

Jeanne S. Orr Nathan DelHierro Angela Heitger Jonathan Bernard Paul D. LoScalzo Mark Steiner Norberto Zimbleman Robert Workman

Structure Types



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Reservoirs Environmental, Inc. TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX (N) S
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mn12)	
QA Type	·

Client :	RHR
Sampla Type (A=Air, t)=Dust):	A
Air volume (L) or dust area (cm2)	986
Data received by lab	1/19/12
Lab Job Number	228051
Lab Sample Number	852887

F-Factor Calculation (indirect Pr	eps Only):
Fraction of primary filter used	
Total Resuspension Volume (ml)	:
Volume Applied to secondary filter (ml)	

Analyzed by	JB				
Analysis date	1/20/12				
Method (D=Direct, I=Indirect,					
IA=Indirect, ashed)					
Counting rules	444				
(ISO, AHERA, ASTNI)	AH.				
Grid storage location	Month Analyzed				
Scope Alignment	Date Analyzed				

Grid	Grid Opening	Structure Type	No. of Structures Dimensions		nsions		Mineral Class				1 = yes, blank = no			
			Primary	Total	Length		Identification	Amphibole	C N	NAM	Sketch/Comments		Photo	EDS
H	H3-4	UD		200										
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	F2-1	M				1								
B	4410	NO				·		18	/20/	2				
	H4-6	20						/./						
	646	ND				·								
	64-4	ND		•										

Reservoirs Environmental, Inc. TEM Aspestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX (N) S
Voltage (KV)	100 KV
Magnification	(20KX) 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Tyce ,	

RHR
A
986
1/19/12
228051
852883

F-Factor Calculation (Indirect Pro	eps Only):
Fraction of primary filter used	
Total Resuspenaion Volume (mi)	
Volume Applied to secondary filter (rtil)	

Analyzed by	JB
Analysis date	1/20/12
Method (D=Direct, l=Indirect, IA=Indirect, ashed)	P
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

	Grid	Grid Opening	Structure	No. of Str	ructures	Dimer	nsions	Identification	Mineral Class				1 = y	es, blank	≖ no
L			Туре	Primary	Total	Length	Width		Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
	A_	62-6	ND								 4.				
		F2-6	MD			Pros	A.	3	~ 70 L.n	(m	_	5-7% de	bus		
		E3-6	ND				: -								
		C3-6	ND						1						
	B	14-1	ND						13	20/12					
		K4-1	ΔĎ						7'						
$\cdot \left[\right]$		H4-1	ND												
		614-1	W		-										
													1	1.	
	+														

Reservoirs Environmental, Inc. TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX NS
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: ID=	0.066 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

RHR
A
986
1/19/12
228051
852884

Fraction at primary fitter used	
7otal Resuspenation Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	JB
Analysis date	1/20/12
Method (D=Direct, I=Indirect,	7 7.
IA=Indirect, ashed)	$ \mathcal{D}$
Counting rules	A44.
(ISO, AHERA, ASTM)	AH .
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

	Grid	Grid Opening	Structure	No. of St	ructures	Dimer	nsions	Identification	Mineral Class				1 = v	es, blank	≖ по
	O.I.O	Cha Opening	Туре	Primary	Total	Length	Width		Amphibole	С	NAM	Sketch/Comments	Sketctr	Photo	EDS
	A	K3-60	ND												
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		613-6	ND			Pu	0	9	Lentunt	20	D-25	ho de bus			<u>.</u> .
		H3-1	ND							1			_	·	
	3	K3-6	ND						1	8:1	20/1	3			
		H3-60	ND						/7	7	/				
		F3-4	MD												
Γ		£3-4	M											·	

Reservoirs Environmental, Inc. TEM Asbestos Structure Count

Laboratory name;	REI
Instrument	JEOL 100 CX (N) S
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client :	RHR
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	983
Date received by lab	1/19/12
Lab Job Number	228051
Lab Sample Number:	85288

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Arialyzad by	JB
Analysis date	1/20/12
Method (D=D)rect, =Indirect, A=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH.
Grid storage location	Month Analyzed
Scope Alignment	Data Analyzed

Grid	Grid Opening	Structure	No. of Str	uctures	Dimer	nsions	Identification	Mineral Class				1 = y	es, blank	= no
	One Opening	Туре	Primary	Total	Length	Width		Amphibote	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	164-6	W												
	H4-6	W		•	no	Å	80	hon has	1 3	-5	La debus			
	1914-6	M		f	ass	3	60 %	ain tant	3-	5	La debris			
	F4-6	ND			/								.	
B	E4-10	NO						//	٠					
	14-10	W			· .			13 1/20/1	<u> </u>				•	
	B4/0	ND					,							
	A4-6	M		-										
											3			
									1					

Analytical Procedures – AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber: is a structure having a minimum length greater than or equal to 0.5

micron with an aspect ratio of 5:1 or greater with substantially parallel

sides.

Bundle: is a structure composed of three or more fibers in parallel arrangement,

with each fiber closer than the diameter of one fiber.

Cluster: is a structure with fibers in random arrangements such that all fibers are

intermixed and no single fiber is isolated from the group.

Matrix: is a fiber or fibers with one end free and the other end embedded or

hidden by a particulate. The exposed fiber end must meet the fiber

definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50th structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be inevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm² clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

Equations Used for Calculations

Area Analyzed, mm² = # GO counted x Average GO Area (mm)

Concentration, $s/cc = \frac{\text{\# Asbestos Structures}}{\text{\# GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm}^2)}{\text{Average GO area (mm}^2)} \times \frac{\text{IL}}{1000cc}$

Filter loading, s/mm² = # Asbestos structures Area Analyzed (mm²)

GO = TEM grid opening



January 23, 2012

Laboratory Code: Subcontract Number: RES NA

Laboratory Report: Project # / P.O. # Project Description: RES 228155-1 None Given None Given

David Roskelley R & R Environmental 47 West 9000 South #2 Sandy UT 84070

Dear Customer.

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 228155-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer Orr

President

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number:

RES 228155-1

Client:

R & R Environmental

Client Project Number / P.O.: Client Project Description:

None Given

Date Samples Received:

None Given January 20, 2012

Analysis Type:

TEM, AHERA

Turnaround:

24 Hour

Date Samples Analyzed:

January 21, 2012

Client ID Number	Lab ID Ni	Number Analyzed Volume Asbestos Sampled Structures		Number of Asbestos Structures Detected	Analytical Sensitivity	Asbestos Concentration	Filter Loading	
•			(mm²)	(L)	20100100	(s/cc)	(s/cc)	(s/mm²)
3W-011912 SW	EM	853766	0.0900	928	ND	0.0046	BAS	BAS
3W-011912 NW	EM	853767	0.0900	928	ND	0.0046	BAS	BAS
3W-011912 NE	EM	853768	0.0900	928	ND	0.0046	BAS	BAS
3W-011912 SE	EM	853769	0.0900	937	ND	0.0046	BAS	BAS

NA = Not Analyzed

ND = None Detected

BAS = Below Analytical Sensitivity

Average Grid Opening in mm² = 0.010

Filter Material = Mixed Cellulose Ester

Filter Diameter = 25 mm

Effective Filter Area = 385 sq mm

DATA QA

Due Date:	·21.12
Due Time:	1026

RESERVOITS ENVIRONTENTAL, INC... S801 Logan St Correr, 0.0 e0216 - Ph; 303 894-1986 - Fax 303 477-4276 - Toli Free; 996 RESI-ENV

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ASBESTOS LABORATORY HOURS: Weekda	ys: 7am - 7ptn					R	EQU	ESTE	ĎΑ	NAL	YSI	S					VAL	ID N	ATR	IX CO	DES	LAB NO	TES:
PLM / PCM (TEM) RUSH (Saite Day) DC	PRIORITY (Next Day) _	_STANDARD	Π		П			П	Т	П	T	П	T		T	- /	\lr =	<u> </u>		Bı	ulk = B		
	= 2hr, TEM = 6hr.)		J]			ļ))		1	1			ı i	L	0	ust =	D		Pε	aint = P	L	
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Salmonella, Listeria, E.coli, APC, Y & M	48 Hr. <u></u> 3-5 Day RUSH <u></u> 24 Hr <u></u> 48	Hr3 DayS Day	1			Respirable	yte(s) Welding		4	+	티를		121	E O	1							 	
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Client sample ID number (Samp	ale IFMs report he prejected		Ę	Sem i	₹	DUST	METALS RCRA 8,	ORGANICS - METH	ŋω	MUCR	S I III		<u>ઇ</u> ≻	≥ ₹	Ш	Sample V (L) / Area	Matrix	8	Colle rpm/d		Collected		
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4 BW-011912 SE				1		-	 :	+	+	+	+-		+		~~	37			-		::: * : * · ·		60
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Number of samples received:	(Additional	samples shall be liated on	atta	ched lo	ng fo	rm.)																	
NOTE: REI will analyze incoming samples hazed unos milornal analysis as indicated on this Chain of Custody shall constitute a	ion masived and will not be respon analytical services agreement	onsible for arrors or omissions by co with payment tarms of NET 30 day	alculet 8, failt	tions read	atting fr nply Vrl	roin th	e (naccu yment te	racy of rms ma	arigin y resu	el data It in e	1. By 1 1.5%	lgning month	dient	/company rest surcha	repra arge	sentativ	a agre	es tha	l Sabmb	sion of	the following se	mples for requested	1
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J																	_ ~		~				



January 24, 2012

Laboratory Code:

RES NA

Subcontract Number: Laboratory Report:

RES 228277-1

Project # / P.O. #
Project Description:

None Given 3rd West Sub - RMP

David Roskelley R & R Environmental 47 West 9000 South #2 Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 228277-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer Orr

President

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0016

TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number:

RES 228277-1

Client:

R & R Environmental

Client Project Number / P.O.: None Given

Client Project Description:

3rd West Sub - RMP

Date Samples Received:

January 23, 2012

Analysis Type:

TEM, AHERA

Turnaround:

24 Hour

Date Samples Analyzed:

January 24, 2012

Client	Lab		Area	Air	Number of	Analytical	Astrestos	Filter
ID Number	ID N	umber	Analyzed	Volume Sampled	Asbestos Structures Detected	Sensitivity	Concentration	Loading
			(mm²)	(L)		(s/cc)	(s/cc)	(s/mm²)
3W-012012 SW	EM	85 441 8	0.0900	867	ND	0.0049	BAS	BAS
3W-012012 NW	EM	854419	0.0900	867	ND	0.0049	BAS	BAS
3W-012012 NE	EM	85 442 0	0.0900	867	ND	0.0049	BAS	BAS
3W-012012 SE	EM	854421	0.0900	864	ND	0.0050	BAS	BAS

NA = Not Analyzed

Filter Material = Mixed Cellulose Ester ND = None Detected

BAS = Below Analytical Sensitivity

Average Grid Opening in mm² = 0.010

Filter Diameter = 25 mm Effective Filter Area = 385 sq mm

DATA QA

RES 228277

Pager : 303-569-2096

	INVOICE TO: (IF	DIF	FERE	NT)									(ONTA	CT IN	IFOF	MATI	ON:			
Company: [L&R Environmental	Company.						stact:	Java	2. [03k	eU	W				Conti					
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ASBESTOS_LABORATORY HOURS: Weekdays: 7am - Tpm	<u> </u>				R	EQU	ESTI	ED A	NAL	YSIS	3				VAI	JD N	MATRI	X CO	DES	LA	NOTES:
PLM / PCM / (EM) RUSH (Same Day) X PRIORITY (Next Day	y)STANDARD	١.		1 1			Н			$ \cdot $		Н		<u> </u>	Air =		\bot		ulk = B		<u></u>
(Rush PCM = 2hr, TEM = 6hr.)		ļ	Ì	1		1						H			Dust :				aint = P	un	
CHEMISTRY LABORATORY HOURS: Weekdays: 9am - Spm		Į.				1					1	H		_	Soil =		\dashv		pe = W		12402
Metal(s) / Dust RUSH 24 hr 3-5 Day	**Prior notification la		Quant			ı						1		_	wab =		 _		= Food		J
RCRA 8 / Metals & Welding RUSH 5 day 10 day	required for RUSH	e e				Scan			į				ဋ္ဌမ္က	Danki	ig vva		$Ow_1 w$		Waler = WW		·
Organica 24 tir 3 day \$ Day	· jurnarounda.**	Point Count	Preps			18			ja ja				NOTES	**A9	TM E				media only**		
MICROBIOLOGY LABORATORY HOURS: Weekdays: 9am - 6p	m		S. 25			Metals		+	ď		ig s	ا ج ا	ER N	 	T						
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Salmonella, Listeria, E.coll, APC, Y & M48 Hr3-5 Da	 ny	5	₹.8	8H¥	200	13		1 [‡	활	Quantify	튙	5 ×	1							
Mold RUSH24 Hr	_48 Hr\$ Day5 Day			g g	Respirable	/te(s) Welding			ğ	1 14 [১ ১	ð	TALS OR	ľ				.			
**Turnaround times establish a laboratory priority, subject to laboratory volume and	are not quarantaed. Additional fees	Short report.	3 8	7400B,	8		ORGANICS - METH	* <u>;</u> ;	. Č	8	÷ +	8	ĕ∣≨	l e							
apply for afterhours, weekends and hplidays.**		ž	AHERA rant, Mi	7400A,	Total,	TC.P.	<u>`</u> .	5 5	Ŧ 5	+	と な	7	÷ 8	Volume	इ	5		- 1			
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Client sample ID number (Sample ID's must be unique	θ)	4		1	إة	₹ ¥	٥	1	MICR	OBIO T T	LOGY	, 1 - T	18		7-2	*	mm/dc		hhimm afp	<u> </u>	<u> </u>
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Number of samples received: (Additi	onal samples shall be listed on	attac	hed lo	ng fo	m.)																
NOTE: REI will analyze incoming earnples traced upon information received and will not be analysis as indicated on this Chain of Custody shall constitute an anglytical sendoes agreed	rasponsible for errors or cridations in ca	alculat	ions res	uiting fr	rom the	e Inaccu	racy o	f odgina	data.	By sk	gning c	ient/c	ompany i	epresentat	ve egre	165 tha	t submist	alon of t	the following Sar	nples for req	uested
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Laboratory Use Only	te/Time:	_ ~	117	<u>. </u>		-					E	سل.		∏т∈	emp. (F°)		_ Ye	s/No Y	s/No	Yes No
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Attachment I

Key to Count Sheets Count Sheets Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

Asbestos Type A = Amosite An = Anthophyllite C = Chrysotile Cr = Crocidolite T = Tremolite Structure Types F = Fiber B = Bundle C = Cluster M = Matrix

ND = no structures detected

M = other structure associated with a matrix

NAM = Non Asbestos Mineral

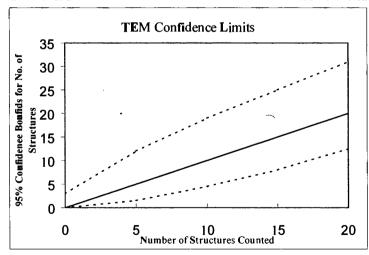
XGB = partly obscured by a grid bar

Sizing Conversion
1 length unit = 5 mm on screen = 0.278 micron
1.80 length units = 0.5 micron
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

TEM Analysts

Jeanne S. Orr Nathan DelHierro Angela Heitger Jonathan Bernard Paul D. LoScalzo Mark Steiner Norberto Zimbleman Robert Workman



 $Upper \ and \ lower \ 95\% \ confidence \ bounds \ for \ the \ number \ of \ structures \ counted \ assuming \ a \ Poisson \ distribution.$

Reservoirs Environmental, Inc. TEM Asbestos Structure Count

Laboratory name:	REL
Instrument	JEOL 100 CX N S
Voltage (KV)	100 KV
Maanification	(20K) 10KX
Grid opening area (mm2)	0.01
Scale: 1L=	∕ 0.28 um
Scale: 1D =	0.056 um
Primary filter area (mn12)	385
Secondary Filter Area (mn12)	
QA Tyoe	2 .

Client :	RAR
Sample Type (A=Air, D=Oust):	A
Air volume (L) or dust area (cm2)	867
Date received by lab	1/23/12
Lab Job Number	228277
Lab Sample Number:	8544 18
· · · · · · · · · · · · · · · · · · ·	

Lab Sample Number:	854418
F-Factor Calculation (Indirect Pr	eps Only):
Fraction of primary filter used	
Total Resuspsnsion Volume (mi)	
Volume Applied to secondary filter	

Analyzed by	邛
Analysis date	1/24/12
Method (D=Dlrect, l=indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	id Opening Structure No. of Structures [Dimei	nsions	Identification	Mineral Class				1 = yes, blank = no			
	J	Туре	Primary	Total	Length	Width	I GOTKIII GGGIGII	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	64-1	ND												
,	FU-1	ND				Par	AR	~90	1/00	nhu	£ 7	-10%	de	bn's
	E4-1	A				• • •				16				
	C4-1	W							4	5	/24/12			
	B4-1	ND									7 .			
B	K33	ND											•	
	1+3-3	ND									,			
	613-3	M							,					
	F3-3	M												
						1 - 4								·

Reservoirs Environmental, Inc. TEM Asbeatoa Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX (N) S
Voltaae (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm2)	0.01
Scale: 1L=	0.28 um
Scale: 1D =	0.056 um
Primary filter area (nim2)	385
Sdcondary Filter Area (mm2)	
QA Туре	

Client :	Rok
Samole Tyoe (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	867
Date received by lab	1 23 2
Lab Job Number:	228277
Lab Sample Number:	854419

rap sample Number:	854919
F-Factor Calculation (indirect Pres	os Only):
Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	巧
Analysis data	1/24/12
Method (D=Direct, l=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage kication	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Strcture	No. of St	ructures	Dime	nsloils	Identification	Mineral Class				1 = y	es, blank	≖ no
	One Opening	Туре	Primary	Total	Length	Width	· · ·	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	4-3	ND			,	_								
	K4-3	M		<u> </u>	:	1216	\	To hoin be	not	5	-10% de	bus		•
	14-3	M				RAS	3 3	Dolanh		. 5	-10 % do	ov's		
	H3-6	NO							· C					
	636	1/0												
B	H3-4	ND		N 49 44										
	634	ND			201	10.0		/:/		1267			77.4	(*************************************
	F3-4	ND			***		1	1/24/12						
77.75.22	E3-4	NO					//	77					1 2 2 3 3	

Reservoirs Environmental, Inc. TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX A S
Voltage (KV)	100 KV
Magnification	(20K) 10KX
Grid opening area	0.01
	0,28 um
Scale: 1L =	
Scale: 1D = Primary filter area	0.056 um
(mm2) Secondary Filter Area	385
(mm2)	<u> </u>
QA Tyoe	

Client :	RAR
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	867
Date received by lab	1/23/12
Lab Job Number:	228277
Lab Sample Number:	854420

F-Factor Calculation Ondirect Pre	ps Only).	
Fraction of pitmary filter used		
Total Resuspension Volume (ml)		
Volume Applied to secondary filter		

Analyzed by	巧
Analysis date	1/24/12
Method (O=Direct, I=Indirect, IA=Indirect, ashed)	177
Counting mies (ISO, AHERA, ASTM)	AH
Grid storage location	Month AnaNzed
Scope Alignment	Date Analyzed

Ġrid	Grid Opening	Stmcture	No. of St	mctures	Dime	nsions	Identification	Mineral Class				1 = y	es, blank	≖ no
	Ona Opening	Туре	Primary	Total	Length	Width		Amphibole	c	NAM	Sketch/Comments	Sketch	Photo	EDS
A	613-4	10												
, -,	F3-4	V				Proc	À.	70 / 10 m	nf	5-	10% debis			
•	E3-4	10				Pmp	3 8	Dobinto	1.6	5-	0% debn's			
	C3-4	ΛΛD						h						
	133-4	ND						181	24/1	2				·
3	84-4	ND						1///	11			,		
	44-4	ND							1.				d _e	
· -	G14-4	ND					·							
46	EF44	ND				7								-
4-4														

Reservoirs Environmental, Inc. TEM Astrestos Structure Count

Laboratory name:	REI
Instmment	JEOL 100 CX A S
Voltage (KV)	100 KV
Magnification	(20K) 10KX
Grid opening area (mm2)	0.01
Scale: 1L=	0.28 um
Scale: 1D=	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Tyoe	

Client :	RAR
Samole Type (A=Alr, D=Oust);	A
Air volume (L) or dust area (cm2)	Stock
Date received by lab	1/23/12
Lab Job Number:	228277
Lab Sample Number:	80:44 21

F-Factor Calculation (indirect Pre	ps Only):
Fraction of primary filler used	
Total Resuspension Volunta (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	功			
Anatysis date Method (D=Direct, t=Indirect, IA=Indirect, astved)	1/24/12			
Counting mles (ISO, AHERA, ASTM)	AH			
Grid storage location	Month Analyzed			
Scope Alignment	Date Analyzed			

Grid ,	Grid Opening	Structure Type	No. of Structures		Dimensions		- Identification	Mineral Class				1 = yes, blank = no		
			Primary	Total	Length	Width	1 '	· Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	H4-3	ND												
	614-3	ND). MD_	A 8	Oho nom	1	5%	6 Jelsus			
· -	F4-3	MD		:	P	m /	B-A					·		
	E4-3	MD				0	do	1	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\					
	C4-3	ND					40	1/24/12	٠					
B	14-6	ND					/	7 7		:				
	K4-6	ND							1.					
	H4-6	ND			,		·							
,	64-6	NO												
					·				• • •					

Analytical Procedures - AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber: is a structure having a minimum length greater than or equal to 0.5

micron with an aspect ratio of 5:1 or greater with substantially parallel

sides.

Bundle: is a structure composed of three or more fibers in parallel arrangement,

with each fiber closer than the diameter of one fiber.

Cluster: is a structure with fibers in random arrangements such that all fibers are

intermixed and no single fiber is isolated from the group.

Matrix: is a fiber or fibers with one end free and the other end embedded or

hidden by a particulate. The exposed fiber end must meet the fiber

definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50th structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm² clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

Equations Used for Calculations .

Area Analyzed, $mm^2 = \# GO \text{ counted } x \text{ Average } GO \text{ Area } (mm)$

Concentration, $s/cc = \frac{\# \text{ Asbestos Structures}}{\# \text{ GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm}^2)}{\text{Average GO area (mm}^2)} \times \frac{1L}{1000cc}$

Filter loading, s/mm² = # Asbestos structures Area Analyzed (mm²)

GO = TEM grid opening